

THOUGHTS SUGGESTED BY A STUDY OF THE MENTAL DEVELOPMENT OF THE BLIND.

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To one who would make the attempt to obtain psychological light out of the darkness in which the blind are enveloped, three preliminary considerations are important.

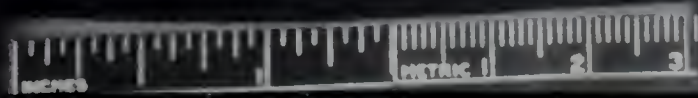
First,—Comparatively few sightless people were blind at birth. A large majority of those found in the state educational institutions, lost their sight by accident or by disease after many years of perception by means of vision. Out of 185 pupils in the Illinois Institution examined by Dr. Arthur E. Prince in Jan. 1892, only 13 per cent were congenitally blind. If to these we add the 24 per cent whose blindness was caused by ophthalmia neonatorum, we have 37.6 per cent who have never enjoyed perception through the sense of sight.

If we take into the account all the blind in the state, old as well as young, the congenitally blind plus those who lost their sight in early infancy, would not exceed 10 per cent of the entire number.

Second,—Since blindness caused by ophthalmia neonatorum, is usually the result of neglect or ignorance, and since gross negligence would more frequently occur among the less intelligent classes, it is fair to assume, and observation confirms the correctness of the assumption, that this 10 per cent will not compare favorably in hereditary intellectual power with the same number of children having unimpaired faculties.

Third,—The conditions that have resulted in blindness, have, in many cases produced other defects, so that congenital blindness is often accompanied with physical and mental weaknesses that are more serious obstacles in the mental development of the child than blindness itself.

From the foregoing it will appear that only a small per cent of the blind—perhaps from 3 to 5—belong to that class of whom it may be said that they have never had sight and are normal in all



other respects, and are therefore the most desirable subjects for examination by one who desires to note the most marked effects of blindness upon mental development. It is this class, then, that I shall, for the most part, have in mind in this brief presentation of the characteristics of the blind.

1. It is a well known fact that the sense of touch in the finger-tips of the blind becomes developed to a very high degree.

The intelligent blind child not only reads with his fingers letters slightly raised, but when the conditions are favorable he reads when eight or ten thicknesses of a silk handkerchief intervene between the finger and the printed page. He notices slight differences of surface; whether clothing is soiled or clean; whether paper has "ink print" upon it or is plain, etc. He observes differences in the texture of cloth. He recognizes his play-mate by a single touch of the garments. Little Edith Thomas, one of the deaf and blind children in the Perkins Inst. at South Boston, with whom I had spent an evening, recognized me next morning by a single touch of my coat sleeve. Helen Keller reads lips by touch. With her fingers upon my lips, I, a stranger, asked, "Do you know Mr. Wade?" With great promptness and with sufficient distinctness to be readily understood, she replied. "Yes, yes, I know Mr. Wade."

This however is worthy of remark: Those parts of the body, and those only, seem to be unusually sensitive that are brought into frequent use for the purpose of perception. The boy who does all his reading with the index finger of one hand, is usually "blind," or nearly so, in his other fingers, so far as reading is concerned. John Egan lost the tip of his "reading finger" by a felon. Another finger must be educated. It would seem then that the skill of the blind in the use of the finger tips is simply the result of continued effort, and that the seeing child would accomplish as much were the inducements as great.

2. The sense of hearing becomes developed to a remarkable degree. In every Institution for the blind that I have visited there are pupils who recognize absolute pitch. Very young blind children do this. They seem to have the power of analyzing instantly a chord or even a discord, and noting the elements of which it is composed. A new chime whistle was attached to one of our boilers. Several pupils were asked separate and apart

from their fellows,—“What is the pitch of the new whistle?” There was almost perfect agreement in the answers of the best trained pupils. “There are three tones, sir; one is A; another is C slightly sharpened, and the third is E just a little flat.” The blind hear and interpret so far as possible every sound. Indeed in this way they “take their bearings.” The sounds that come to them through open windows or doorways—the slight echoes from the buildings along the street, or even the echoes of their own foot-falls from the walls of a room, guide them in their attempts to find their way about. The testimony of a blind man on this point is,—that as a boy he could easily make his way about the barns and out-buildings of his own home; but put a basket over his head, and he was lost. He could no longer see—with his ears! The same man now goes alone over the city of Jacksonville. He experiences less difficulty on Sundays than on other days, because on that day the noise made by wagons upon the pavements is less. If he carries an umbrella, he carries it high and even then the noise of the rain drops striking it, will sometimes cause him to lose his way. I am convinced that the great skill shown by the blind in moving from place to place is very largely the result of a more perfect interpretation of the sensations that are conveyed to the brain by the auditory nerve. Without doubt the seeing child would accomplish as much in perception by sound, if he would as persistently attempt to do this.

3. The “chemical senses,” taste and smell, have so little to do with mental training that it is not necessary to consider them in this discussion. Sense-perception, the basis of thought, comes to the normal child, *for the most part* through *three avenues*. It comes to the blind child through *two* only, the tactile sense, and the sense of hearing. An authority has said that the sense of sight gives rise to nine-tenths of all our sense-perceptions. Assume that the increased activity and delicacy of the senses of touch and hearing in the blind serve to multiply by three the amount of sense-perception contributed through these two avenues, and our blind student can possess only three-tenths as large a stock of sense concepts as the child with unimpaired faculties. Upon this narrow base he must build. *Yet he builds*; and in some respects the structure is remarkable, though strictly of course in accord with psychological law.

Indeed, had there never been an educated blind man, a psychological expert would have been able to predict with some degree of accuracy the kind and quality of brain power that could be developed in darkness.

RESULTS.

Let us note, then, some of the results of attempts to educate a class, the sum of whose sense-concepts coming as they do, mainly through two avenues, at best cannot exceed three-tenths of the normal amount. Let it be conceded, too, that here as elsewhere mistakes have been made. The most serious error, as it seems to me, grows out of a very common notion among the teachers of the blind, and the blind themselves, that the work done in the schools for the blind should resemble as closely as possible the work done in schools for those that have sight. They would, so far as conditions will permit, completely ignore the fact that the pupils are defective. They assume that what is good for a boy with his eyes wide open, is good for a boy with his eyes shut; that what is enough for a seeing boy, is enough for a blind boy. They overlook, in many instances, at least, the fact that because a child is blind his greatest need is such environment as will make a larger amount of sense-perception possible; that he needs this many times as much as the seeing child needs it. It is true that the Kindergarten and observation-work have been introduced into the best schools for the blind. This is an important step in the right direction. But, too often, the teachers attempt simply a part of the work done in schools for the seeing. They should do many times as much as is done in such schools. Is the seeing child sometimes allowed to use and required to memorize words that are to him devoid of content? How much greater, think you, is the liability that this will occur in a school for the blind? Does the child with unimpaired faculties need "observation lessons" in order that the words which he hears and speaks may not be meaningless symbols? What shall we say of the child whose natural perceptive power is divided by ten? And yet I say, without fear of contradiction, that there is no school for the blind in America—in the world—in which as much time is devoted to sense-perception as is devoted to that subject in the Cook County Normal School!

But what is the result of this attempt to educate without any adequate effort to supply what would seem to us to be a necessary stock of sense-concepts? Here it seems to me, is the interesting, the instructive, the valuable part of the whole lesson. Vastly more is accomplished than one would at first think possible. The defect from which the blind suffer in no way interferes with the action of the representative and reflective powers. Indeed the blind child has very much more time for reproduction and reflection than does the seeing child. The few sense-concepts which he possesses, he examines from every possible mental standpoint. He compares them. He sees the relation of the new concepts to each other and of the new to the old. He has ample time for and delights in the exercise of apperception. He suffers on account of the abnormal limitation of his perceptive powers; but somewhat of compensation comes to him in his greater activity in apperceptive efforts. While *I* am occupied with new and attractive sense-concept, *he* is reproducing and comparing and modifying and classifying the old.

One of the results of this frequent reproduction and recognition of concepts, is that the blind child has a most excellent memory. This is especially noticeable in the ease with which he remembers names and figures, particularly dates, and the order of things or events. A blind boy in the Illinois Institution, much below the average in mental and physical ability, remembers every date in the United States History which he studied. Indeed he seems to have a remarkable appetite for dates. He would come to the office with the question, "Mr. Hall, are you busy?" "Not very busy, Bismarck, what can I do for you?" "Will you please give me a few dates?" If I gave him ten or twelve dates that were new to him, he was sure to return next day to exhibit his power of retention and ask for more. A blind boy ten years old who spent two weeks with me in Waukegan not long since, learned in a quarter of an hour the name of every teacher in the city and associated the name with the position occupied by the teacher. I have known a pupil to multiply a number consisting of eight figures by another number consisting of eight figures, carrying forward mentally each partial product and uniting it with the product already obtained until the sum of all the partial products was found. (Do not think, my fellow-teachers, that I

encouraged work of this kind). There is a marked tendency in schools for the blind, as there is in some other schools, to move along the lines of least resistance. It is easier to lead the blind child to exercise his mental powers in "juggling with figures" than it is to provide the environment that will enable him to obtain new sense-concepts. Moreover, in all schools for defectives, there is the constant temptation to engage in the production of unsymmetrical prodigies whose performances shall delight their friends and astonish visitors.

Because of the active memory of the intelligent blind child, because of his power quickly and easily to reproduce and recognize any concept that has once had a place in his consciousness, and especially because of his very large amount of exercise in the reproduction of concepts that re-appear in his consciousness at the call of their audible symbols, he becomes a most excellent listener. Spoken words seem instantly to bring back to consciousness the concepts of which they are the signs. Thus it often happens, as I believe, that the concept panorama that appears in the mind of the blind child, as he listens to the reading of some literary production, is much more distinct and elaborate than the seeing child's panorama. The coloring would be wanting in the blind child's picture, but the greater distinctness and clearness of the mental images would more than compensate for the absence of color. His stock of concepts may be small, but *they are immediately available*. His mental capital may be limited but it is *always at hand ready for investment*.

The blind child exercises with unusual promptness and skill his power of constructive conception. He may not be able to build in so great variety, but, as far as his materials will permit, he builds much more rapidly and accurately than does his seeing competitor. It was once my privilege to teach physics to a class of eleven blind boys. The text employed was Avery's. I had previously taught not less than six classes of seeing pupils, from the same text. I am compelled to say that no one of the six classes accomplished more in nine months than did the blind boys. Very many of the experiments they performed themselves, with no more breakage of instruments than would ordinarily be expected in any school. The one thing that especially surprised me was the readiness with which they obtain a conception of a

machine from an oral description of it. Little repetition was necessary. They could "see" a diagram from a verbal description of it, almost as easily and quite as accurately, as the pupil with eyes could do it with the diagram before him.

Only one of the eleven boys was blind from birth. This one was above the average of his class in intelligence, and a good student. But I was unable to interest him in optics. The other members of the class worked faithfully through the subject, though their zeal was manifestly less than when we were giving our attention to the facts and laws of acoustics. But Frank, the congenitally blind boy, my usually attentive, ever-on-the-alert Frank, frequently nodded, his sightless eyes closed and his chin rested on his breast, while we were talking about the solar spectrum, lenses, and conjugate foci. I let him sleep. Why not? No human power could provide him with the fundamental concepts necessary to make an intelligent beginning in the study of optics!

To me the work of blind pupils in geometry was a very instructive lesson. Their conceptions of angles and diagonals and radii are obtained by representing these with wire staples upon a cushion. With these staples they construct their figures. Circles are represented by paper placed upon the cushions. Pin-heads make the letters. But the successful blind student soon pushes the cushion from him. He can construct mental diagrams more easily, more accurately and much more quickly. His very defect leads him to a higher grade of work. He looks at the diagram with the mind's eye, not with the finger tips; and his conceptive power is developed to a remarkable degree.

During the first year of my work with the blind, I thought to interest and benefit the high-school pupils by the construction of an immense chronological chart of general history, after the fashion of the printed charts. Accordingly I ordered a very long pine board to be fastened to the wall of the high-school room. This I divided with rows of round-headed brass nails into six parts, each part representing one of the thousand-year periods of human history. By means of nails so driven as to form "point letters," I represented upon this chart Adam and Noah and Abraham and Solomon and Christ and Alfred the Great and President Harrison. By lines made up of nail heads, I represented

the lives of some of the principal nations of history. For a time the pupils manifested great interest in the "new method of studying history." But soon their interest in the method—not in history—began to wane. They did not seem to make any use of the chart as a mnemonic aid. In fact they did not need it. At length light began to dawn upon me if not upon my pupils. *I* saw the chart as a whole—could take it in at a glance; afterwards *I* saw it analytically. *They* could not feel it as a whole. The sense of touch always operating synthetically and slowly, required too much time for getting from part to part, to make the chart as a whole of any value to them. Moreover, they could construct mental charts faster than *I* could make material ones out of pine boards and brass nails; and when their mental chart was completed they could find their way from one end of it to the other faster than they could feel their way across my chart. As well give me a coach and four with which to ascend a flight of stairs, as to give a blind boy a chart to help him remember dates.

To recapitulate:

1. Sense-percepts, the basis of soul-life, must come to the blind child mainly through two avenues; to the seeing child through three avenues.

2. Under normal conditions the two avenues together contribute only about one-tenth of the total amount of sense-perception; the one avenue which to the blind child is closed, nine-tenths.

3. By a more perfect development of the tactile sense and the sense of hearing, the blind child succeeds in multiplying the normal product of these senses by two, possibly by three.

4. Therefore the child educated in darkness can come into possession of from two to three-tenths only of what would seem to be the desirable supply of "the elements of soul-life."

5. Yet with this small amount of crude material more perfectly digested, he surprises—nay, startles us sometimes—with exhibitions of his intellectual power.

6. When we attempt to account for his unusual ability along certain lines we discover (a) that he calls into consciousness any former concept with great facility, and (b) that all his mental possessions have been classified and labeled; that he has discovered the reciprocal relations of concepts; that he has perceived, compared, apperceived.

Now while I fully realize that the blind child's intellectual height and depth may be, certainly are, secured at the expense of breadth, I cannot escape the suggestion that in the education of seeing pupils we may be in great danger of sacrificing height and depth to mere breadth. One may eat and eat and become no stronger. One may read and read and acquire but little wisdom. So one may perceive and perceive and not become thoughtful. Digestion and assimilation are as necessary in the latter case as in the two former cases.

In the Old Education we often required our pupils to read and memorize words that were empty of thought. To correct the error the New Education provides for observation lessons and the cultivation from the first of the perceptive power of the child. The pupil perceives, thinks, and expresses his thought. Words become really the signs of ideas. His sense-experience is greatly enlarged and he becomes richer in the "elements of soul-life."

The suggestion, however, forces itself upon me that the advocates of the New Education, may attach too much importance to the *amount* of perception. The mental power of the intelligent blind man—wrought out with less than one-third of the normal amount of the "elements of soul-life" is, to say the least, significant. Perception occupies time; so do reproduction, comparison and reflection. Do not the shortness of life and the law of symmetry alike suggest that the sense-percepts sought after should be those and only those which are worthy of reproduction and comparison, and that no moment of time needed for comparison and reflection should be occupied in perception?

Possibly some one may reply, "Life is not short. Life is everlasting. We educate for eternity." Granted. But efficiency is the desirable thing all along the line. That culture is most needed which makes one most useful to his fellows. Let there be as much of breadth as is compatible with utility; as much of height and depth as will contribute to efficient service.

